

The Northern Hemisphere on a Polar Projection

Text by TERENCE ARMSTRONG

THIS map of the Arctic regions is constructed on a polar projection; it tries to give an impression, on a flat surface, of what the globe looks like when viewed from directly above the North Pole. The main point that it brings out is the relative closeness of Eurasia to America across the Pole. Most maps that we see, of temperate or equatorial regions, use projections in which this dimension is not shown, and so we tend to exaggerate it in imagination. The distance between northernmost Canada and northernmost U.S.S.R. is no more than that between London and Helsinki. The Arctic Ocean, which lies between them, is easily the smallest of the world's oceans. Drifting pack ice covers all of it in the winter, but in summer, for a few months, it melts in many coastal regions, permitting ships to ply along the north coasts of Asia and Alaska, and in some of the more southerly straits of the Canadian Arctic archipelago. Submarines, however, can go to almost all parts of it whenever they choose.

Land ice covers some of the most northerly islands, but these relatively small ice caps are dwarfed by the great ice sheet of Greenland, which contains a reserve of water sufficient to raise the level of world ocean by about twenty feet. The floating ice of the Arctic Ocean, though greater in area, is much less in volume. This ice would make virtually no difference to sea level

if melted, as it is in the sea to start with.

There has been speculation recently as to whether it is firstly possible, and secondly desirable, to try to melt this floating ice (not the land ice, of course—that would obviously be disastrous). It seems that the possibility may exist, if enough money could be found. But the desirability is another matter. To begin with, if the ice were melted, it is by no means certain that it would not at once form again. But even if it did not, short-term gains, such as access for ships and warmer northern summers, might be heavily outweighed by longer-term losses, in the shape of climatic deterioration elsewhere and perhaps even another ice age. So the enterprise is not likely to be undertaken without much fuller study.

A point to notice about the man-made features is the more northerly distribution of towns and settlements in the Old World than in the New. Take, say, the latitude of Edmonton in Canada— 53°N . In the whole of North America and Greenland, there are less than half a million persons living north of that line: while in the Old World, there is half the British Isles, almost all Scandinavia, Moscow, Leningrad and many other Soviet cities—with a population at least a hundred times as great. The reasons for this huge disparity are climatic as well as historical, but even so, it is striking.

No projection of the surface of the globe onto a map can be wholly accurate but each projection has special qualities. In this equal-area projection areas retain their true proportions, in relation to the total areas of the globe, though there is some sacrifice of shape away from the centre. This makes clear the relative size as well as the positions of the countries it shows

The North Polar Regions

Research is the forerunner of development in the cold northlands of Canada and Russia. (Below, right) The jointly-operated Canadian-U.S. weather station at Eureka on Ellesmere Island receives supplies. (Below, left) Polar research workers in many fields of study come to Dikson, on the Arctic coast of Siberia

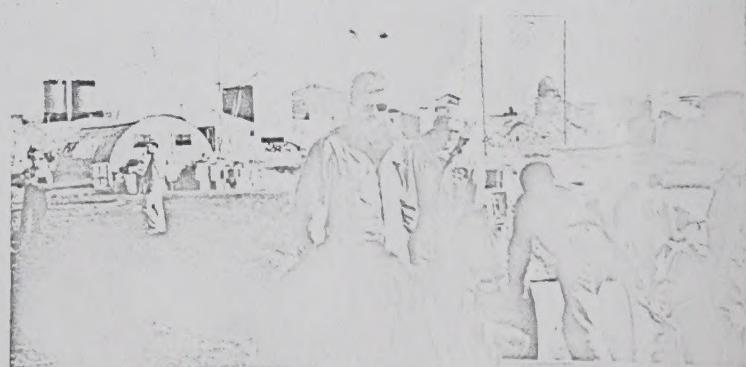
THE POLAR projection map of the northern hemisphere, which is published with this number, will make fascinating study for young and old alike. Many of us have been brought up only with the view of the world provided by Mercator's Projection and in consequence, the relative position of most of the great industrial powers has not generally been realized.

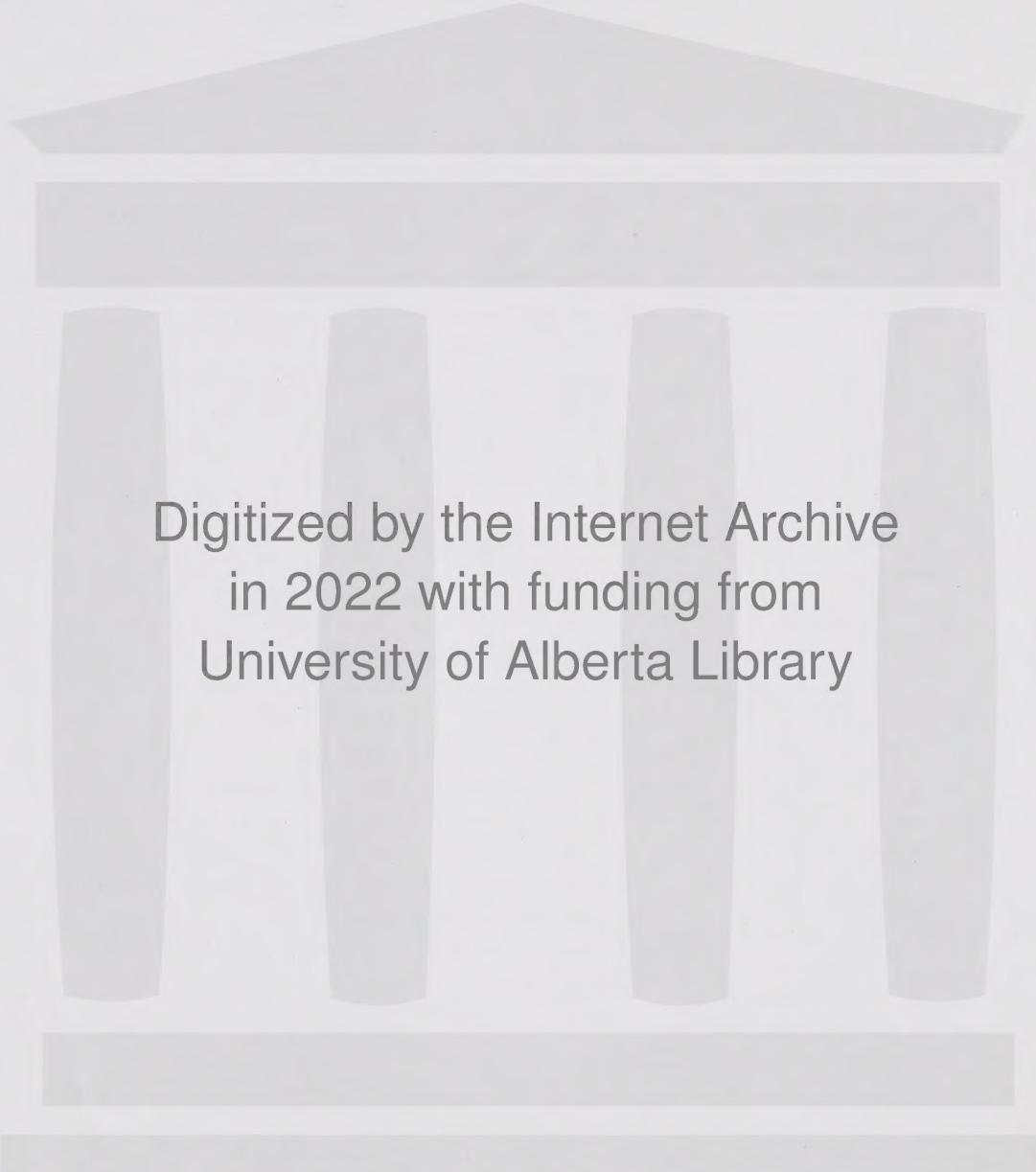
This projection makes clear that the two world powers, the U.S.A. and the U.S.S.R., face each other across the Arctic Ocean, rather than across the Atlantic and Pacific Oceans. The reasons for the positioning of the three early warning stations, at Point Barrow in Alaska, at Thule in northern Greenland and at Fylingdales in England, become much more obvious.

The direct distances from Europe to San Francisco and to Japan are roughly the same but, because it is not yet possible for foreign commercial planes to be routed across Siberia, the air route to Japan has to go by way of the North Pole and Alaska, adding greatly to the distance.

Perhaps the most startling feature brought out by this projection is the relative insignificance of Europe. It is really only a peninsula, a western extension of Asia, dwarfed by the great land masses of that continent and North America, and also Africa. And yet it remains the cradle of culture of the civilized world.

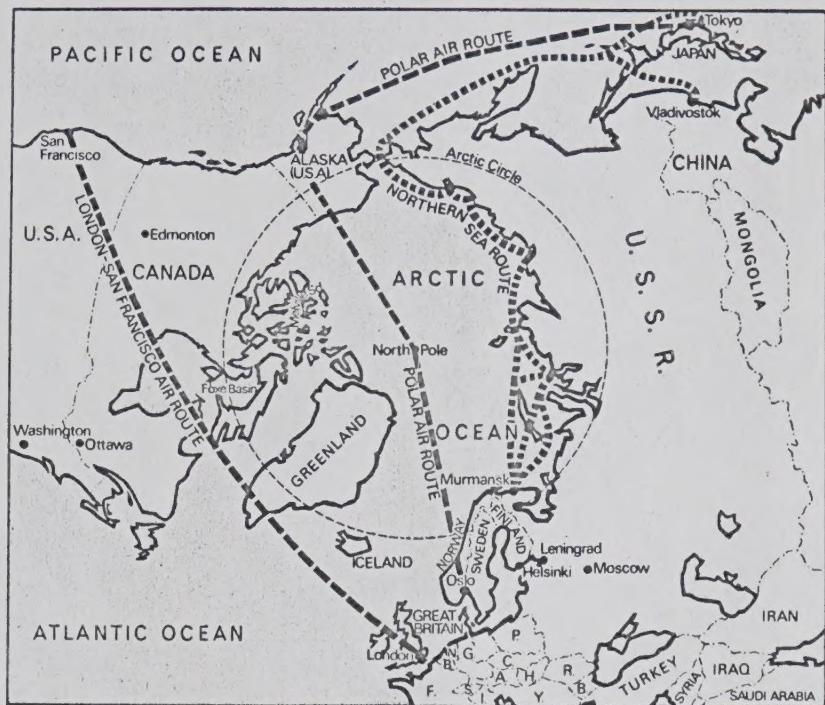
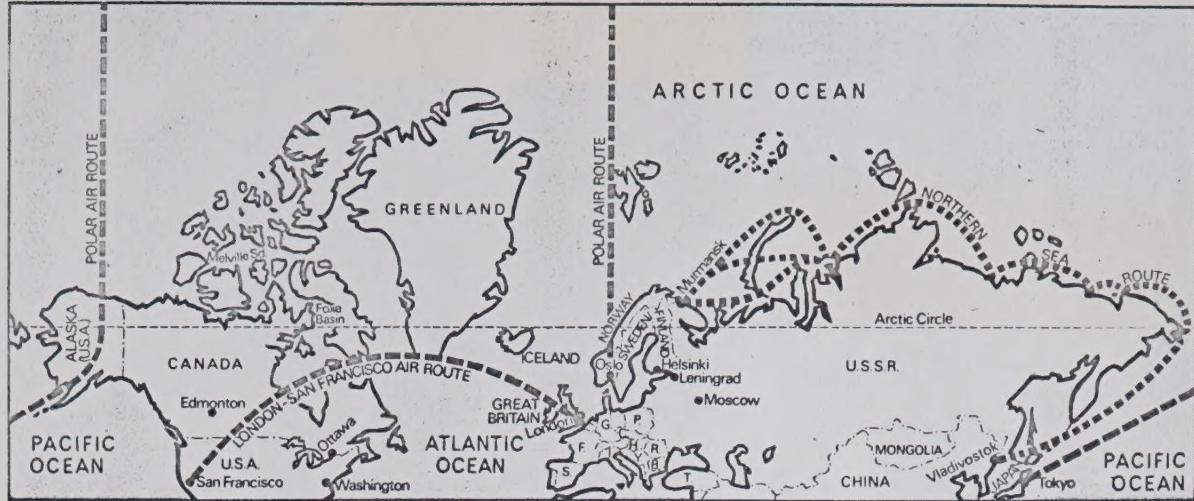
As Dr Terence Armstrong points out, the Old World is developed and populated further north than the New World. Climate is the main cause, the tree line in Siberia lying on the average 500 miles further north; furthermore, much of the soil of northern Canada was carried far to the south during the Ice Age. None the less, the development and peopling of the cold, inhospitable regions of both the Old and the New World will undoubtedly be the real focus of interest in geography during the remaining years of the present century.





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No major geographical discoveries remain to be made. The last land masses of any size to be put on the maps were Stefansson Island and Prince Charles Island, in Melville Sound and Foxe Basin. Both are about sixty miles across, and got on to the maps in about 1950, after aerial survey. In fact parts of both had been reported previously, but insufficient attention had been paid to this; the record of discovery had lain buried in departmental files. These were by no means the first cases of repeated discovery in the Arctic; but they will be the last.

(Top) The exaggeration towards the poles and the split in mid-Pacific are the failings of the traditional Mercator projection. The polar map shows how close northern America and northern Asia really are. Air routes and the important Northern Sea Route are better shown, and the Northern Hemisphere can be viewed more realistically as a single region

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